Cruise Ship Discharges Action Plan

Goal Statement
To prevent impacts to MBNMS resources from cruise ship discharges

This action plan was developed by an internal MBNMS staff team.

MBNMS Staff Contact
Brad Damitz Assistant Management Plan Coordinator

Introduction
Large cruise ships recently began visiting Monterey, with three visits in 2002, and 14 visits scheduled for 2003. These ships can provide local businesses with economic benefits, particularly if they introduce the region to tourists who may return for later visits. However, both the public and businesses have raised concerns about environmental issues associated with these ships. Cruise ships are of enormous size, capable of generating massive volumes of waste. Currently the largest vessel in the global cruise line fleet, Royal Caribbean's Voyager of the Seas, is larger than an aircraft carrier at 1,017 feet in length and holds more than 5,000 passengers and crew.

Worldwide, cruise ships constitute a large and rapidly growing industry. The industry consistently grew at a rate of eight percent per year between 1992 and 2002. By the end of 2001, the worldwide fleet of cruise ships totaled 167 vessels; the industry will increase the fleet by 38 vessels by 2005, an increase of forty-five percent for this five-year period. Passenger numbers in North America are expected to increase from 6.8 million in 2001 to 11.9 million in 2010. Currently 643,000 cruise ship passengers embark annually from California ports in San Francisco Bay, Los Angeles, and San Diego. Although partly constrained by the lack of local docking facilities, cruise ship visits to Monterey are likely to continue to grow as the fleet is shifting from international to more domestic cruises, and due to a new cruise ship docking facility planned for San Francisco Bay.

Due to the recent increase in Cruise Ship visitation to the Monterey Bay, and concern over potential impacts to marine resources from these vessels, this issue has drawn significant attention from the public, during the past year. MBNMS staff have received numerous comments requesting that the MBNMS address this issue. At their February 7th meeting, the MBNMS Advisory Council passed a resolution recommending that MBNMS staff pursue a regulatory prohibition on harmful discharges from cruise ships. In response to this resolution, a regulatory prohibition is being investigated as part of the Joint Management Plan Review Process.

Environmental Impacts of Cruise Ships and Current Regulation
Due to their sheer size, capacity for passengers, and environmental practices, cruise ships can cause serious impacts to the marine environment. The main pollutants generated by a cruise ship are: sewage, also referred to as black water; gray water; oily bilge water; hazardous wastes, and; solid wastes. Large cruise ships can generate as much as eleven million gallons of waste per day.

While large cruise vessels are the equivalent of small cities in regard to waste production, they are not subject to the strict environmental regulations and monitoring requirements that land based facilities are required to comply with, such as obtaining discharge permits, meeting numerous permit conditions and conducting monitoring of discharges. However, there are a number of existing laws that address some aspect of cruise ship discharge. The various pollutants contained on cruise ships, their environmental impacts, and their current regulatory controls are outlined below.

Sewage
Sewage includes vessel sewage and wastewater from medical facilities. Sewage from ships is generally more concentrated than that from land based sources, as it is diluted with less water when flushed (three quarts versus three to five gallons). Sewage discharge can contain bacteria or viruses that cause disease in humans and other wildlife. It can present a public health concern, if discharged in the vicinity of marine life harvested for human consumption, or in or near waters used for recreational activities such as swimming, diving, or boating. Nutrients in the sewage can cause eutrophication, whereby excessive growth of algae depletes oxygen and can lead to the death of fish and other organisms. Additionally, chemicals and deodorants including chlorine, ammonia, or formaldehyde are often used in Marine Sanitation Devices (MSD), and can present a threat to marine organisms. Volumes of sewage for a typical cruise ship have been estimated at between five to ten gallons per person per day, or up to 210,000 gallons per week.

Sewage is classified as a pollutant under the Clean Water Act (CWA). However, cruise ships are not subject to the National Pollutant Discharge Elimination System (NPDES) Permitting Program, which requires land-based facilities to obtain a permit for discharges under the CWA . Black water from cruise ships is however regulated under Section 312 of the CWA, which requires vessels to possess a US Coast Guard certified MSD. A MSD is a piece of equipment designed to treat or store sewage prior to discharge. A type II MSD must meet a water quality standard of 200 fecal coliform per 100 ml of water, for sewage treatment. A type III MSD, also referred to as a holding tank, is designed to contain sewage until it can be disposed of. Section 312 of the CWA is jointly implemented by the USCG and U.S. Environmental Protection Agency, and states may also enforce Federal standards. Section 312 requires the use of MSDs for all vessels within 3 miles of shore, and vessels over sixty-five feet to have a type II or type III MSD. In certain cases the Act can also be applied to any discharge that occurs beyond the three-mile limit but may affect waters within the limit.

Under the Clean Water Act, raw sewage can be legally discharged beyond three nautical miles. However, MBNMS regulations prohibit the discharge of raw sewage and require that discharges from vessels throughout the Sanctuary occur through a properly functioning MSD that meets the standards of Section 312 of the Clean Water Act. Recent discussions indicate this MBNMS prohibition may not be widely known and enforcement may be difficult.

Due to the large volume of their sewage discharges, many cruise ship systems nationwide do not routinely meet the performance standards identified in Section 312 of the CWA. Also, the standards set for MSD-generated sewage are significantly lower than those required by municipal treatment plants. The intent of several of the MBNMS regulations was to avoid impacts from large-scale human activities. For instance, no new municipal or private sewage outfalls may be constructed in the Sanctuary. The sheer volume of discharges from large cruise ships seems to conflict with the intent of the MBNMS regulations.

Graywater
Graywater consists of wastewater from sinks, showers, laundry, and galleys. It can contain a number of pollutants including: suspended solids, oil, grease, ammonia, nitrogen, phosphates, copper, lead, mercury, nickel, silver and zinc, detergents, cleaners, oil and grease, metals, pesticides, and medical and dental wastes. A typical cruise ship produces an estimated 1,000,000 gallons of graywater per week.

Currently, Federal regulations do not prohibit the discharge of gray water in state or U.S. waters, with the exception of the Great Lakes and the state waters of Alaska. MBNMS regulations generally prohibit discharges to the Sanctuary, but provide an exception for discharges from routine vessel operations such as graywater.

Bilge Water

Bilge water consists of fuel, oil, and wastewater from engines and machinery that collects, along with fresh water and seawater in the area at the bottom of the ship's hull, as a result of spills, leaks, and routine operations. It may also contain other materials such as rags, cleaning agents, paint, and metal shavings. A typical cruise ship generates an estimated 25,000 gallons of bilge water per week.

Discharge of fuel or oil, including oily bilge water, is subject to stringent requirements of the Oil Pollution Act and section 311 of the CWA. Under this law, which is enforced by the USCG, vessels are prohibited from releasing any discharge with an oil content of greater than fifteen parts of oil per one million parts water (ppm). Beyond twelve miles, discharges with oil content greater than 100 ppm is prohibited. Several cruise line companies require their vessels to have additional equipment that treats the oily bilge water to 5ppm. Discharge of oily wastes is also addressed under the International Convention for the Prevention of Pollution from Ships (MARPOL), and under the Act to Prevent Pollution from Ships (APPS), which incorporates MARPOL provisions into federal law. They set requirements for the release of oil and noxious substances, set standards for reporting discharges, and establish monitoring and record keeping protocols.

MBNMS regulations prohibit the discharge of oily wastes from bilge pumping at any concentration, however this prohibition is not widely known and enforcement may be challenging.

Ballast Water
Cruise ships take in millions of gallons of ballast water, in order to stabilize the vessel for safe and efficient operation. During the process they take in thousands of species of marine organisms, including various types of larvae, fish eggs, and microorganisms. The water is often drawn in from coastal waters in one area, and discharged at another location. This process has led to the introduction of invasive species, which disrupt marine ecosystems, and cost the U.S. billions of dollars per year.

Ballast water operations are currently regulated by the state of California by the Ballast Water Management for Control of Nonindigenous Species Act. The Act requires vessels to exchange ballast water, in waters beyond 200 nautical miles from land and at least 2000 meters deep, or to retain all ballast water. However, no similar regulations yet address vessels involved only in coastal transits.

Hazardous Materials
Hazardous wastes produced on cruise ships include by-products of dry cleaning and photo processing operations, paints and solvents, batteries, fluorescent light bulbs containing mercury, and wastes from print shops. A typical ship produces an estimated 110 gallons of photo processing chemicals, five gallons of dry cleaning wastes, and ten gallons of used paints per week. These substances can be toxic or carcinogenic to marine life.

The U.S. Resource Conservation and Recovery Act (RCRA) imposes management requirements on cruise ships and other vessels that generate or transport hazardous waste and requires that hazardous materials be offloaded to land based treatment or disposal facilities.

Solid wastes
Solid wastes generated by cruise ships include large volumes of food waste, cans, glass, wood, cardboard, paper, and plastic. Plastic debris can be ingested or cause entanglement to marine life including marine mammals, seabirds, and sea turtle. In some cases the wastes are incinerated on the vessel and the ash is discharged at sea; other wastes are disposed of on shore or recycled. A typical cruise ship generates eight tons of solid waste per week.

The discharge of solid wastes is regulated under APPS and CWA. The Marine Plastic Pollution and Control Act regulates the disposal of plastics and garbage pursuant to ANNEX V of MARPOL. Under these regulations the disposal of plastics is prohibited in any waters, and floating dunnage and packing materials are prohibited in navigable water within twenty-five nautical miles from land. Other garbage including paper, glass, rags, metal, and similar materials is prohibited within twelve nautical miles from shore (unless macerated, in which case it can be disposed of beyond land).

Cruise line industry violations
The cruise line industry historically has had a relatively poor record regarding environmental violations. The vast majority of cruise ships are foreign flagged (mainly Liberia and Panama). According to a report published by the Government Accounting Office, there were eighty-seven confirmed illegal discharge cases from cruise ships between 1992 and 1998 in U.S. waters. Eighty-one of these cases involved oil, and six involved plastic or garbage. Seventy-five percent of these violations were accidental (human or mechanical error).

Cruise Line Industry Initiatives
A number of cruise lines have made significant improvements to address environmental concerns in recent years. The International Council of Cruise Lines (ICCL) is the main trade association that represents 16 of the world's largest cruise lines (95% N American Market, 85% worldwide), and serves as a consultative organization to the International Maritime Organization. ICCL lines reported a reduction in waste by more than 50% between 1992 and 2002. In 2001, the Cruise Industry Waste Management Practices and Procedures document was adopted by ICCL members, and is now a mandatory condition for membership in the organization. Among the principles in this document are: full compliance with international laws and regulations; maintenance of cooperative relationships with U.S. and international regulatory agencies; design, construction, and operation of more environmentally sensitive vessels; utilization of new technologies; adoption of strategies for conserving resources through purchasing and product management; minimization of waste and increasing reuse and recycling; optimization of energy use/efficiency; management of discharges, and; education of guests and staff. These standards are then placed into the Safety Management System for each vessel. Several cruise lines have adopted even more stringent voluntary measures, including Celebrity cruises, whose vessels are required by corporate policy to discharge of black water no closer than 12 miles from shore.

Within the Sanctuary, three cruise lines which visited in 2002 voluntarily adopted a no discharge policy within the Sanctuary, following numerous conversations and meetings with Sanctuary staff, State and local government officials and environmental organizations. While the Sanctuary welcomed these voluntary agreements, one of the cruise lines subsequently broke the agreement by discharging within Sanctuary boundaries upon its departure from Monterey. Critics argue that these voluntary industry initiatives are self regulated, not taken seriously by cruise ship operators, and non-enforceable.

Recent Legislation and Initiatives
The State of California has recently devoted increased attention to cruise ships, and pursuant to AB 2746 created an inter-agency task force in 2001 to evaluate environmental practices and waste streams of cruise ships. The group was also charged with evaluating the adequacy of existing regulations regarding large passenger vessels, and is required to produce a report detailing their findings by June 1, 2003. AB 2746 also requires owners or operators of vessels to submit a quarterly report to the State Water Resources Control Board that details any discharge of gray water or sewage in state water. Several proposed bills addressing cruise ships are currently being considered: AB 121 would prohibit cruise ships from discharging sewage, oily bilge water, and ballast water into state waters, and the four National Marine Sanctuaries of the state (Channel Islands NMS, Monterey Bay NMS, Gulf of the Farallones NMS, and Cordell Bank NMS); AB 906 would prohibit release of graywater and hazardous waste in state waters,

and National Marine Sanctuaries of the State; and AB 433 would revise current California regulations for ballast water and control of non indigenous species.

Other states have also recently addressed this issue. Alaska enacted a law in 2001 which established the Commercial Passenger Vessel Environmental Compliance Program. Federal legislation was also passed that established standards for discharge of black water and gray water in State waters for large passenger vessels with more than 500 passengers. The law gives cruise ship operators the option of either holding all wastewater, discharging it through a type II MSD beyond one nautical mile from shore and at a speed greater than 6 knots, or continuously discharging if the wastewater has been treated by an advanced treatment system certified by the USCG.

In the State of Florida, the state waters within the Florida Keys National Marine Sanctuary (FKNMS) were designated as a no discharge zone by the EPA under Section 312 of the Clean Water Act, making it illegal for any vessel to discharge sewage. The FKNMS is also currently pursuing a prohibition against discharge of sewage from any vessel, within Federal and state waters of the Sanctuary, as part of the regulatory changes of their Management Plan Review. This prohibition would be a FKNMS regulation rather than an EPA no discharge zone.

Action Plan Components

As noted above, a wide array of pollutants may be discharged in large volumes from cruise ships. Although there are a number of existing laws and regulations that partly address this issue, there is a need for a more comprehensive prohibition on cruise ship discharges within the MBNMS, along with improved coordination and outreach to the industry, monitoring and enforcement. These will be developed further as the main components of the JMPR Cruise Ship Action Plan.

Strategy CS-1: Harmful Discharge Prohibition

Strategy Description:
MBNMS staff will characterize the issue and develop a prohibition on harmful discharges for cruise ships operating in the MBNMS. Based on a recommendation by the MBNMS SAC, the MBNMS will consider pursuing a regulatory prohibition against harmful discharges from cruise ships.

Activity 1.1: Compile Additional Background Information Needed to Support Regulation Including On-Board Disposal Practices and Impacts to Resources From:

- Discharges: Black water, gray water, bilge water, hazardous wastes, solid wastes, desalination effluent
- Ballast water

Activity 1.2: Consult and Collaborate with EPA to Determine Alternatives for Regulatory Prohibitions

Activity 1.3: Develop a Prohibition on all "Harmful Discharges" from Cruise Ships to Sanctuary Waters, Except Engine Cooling Water (including treated bilge water, gray water, black water, ballast water, hazardous wastes, solid wastes, desalination brine)

Activity 1.3: Define the Size or Carrying Capacity of the Passenger Vessels to Which the Regulation Would Apply

Activity 1.4: Define What Level of Treatment and Monitoring Would be Necessary to Allow for an Exception to the No Discharge Prohibition, e.g. for Cruise Ships Which are Adopting Advanced Treatment Systems for Sewage Discharges

Activity 1.5: Review and Consider Ultimate Language in any New State Legislation That is Passed to Ensure That MBNMS Regulation Complements and Builds on State Efforts

Status: Phase 1
Potential Partners: SWRCB, RWQCB, State Lands Commission, USCG, Ocean Conservancy

Strategy CS-2: Outreach and Coordination

Strategy Description
MBNMS staff will develop a system to ensure that cruise line industry representatives, cruise ship operators and crew, regulatory agencies, and other relevant parties are cognizant of the Sanctuary's existing and revised policies, if adopted, regarding cruise ship discharges. Staff will also conduct outreach, aimed at educating cruise ship operators and crew about the MBNMS and its resources, potential impacts from vessel operations, and measures that can be taken to minimize these impacts.

Activity 2.1: Develop and Implement a Plan for Outreach on the New Regulation Aimed at Cruise Line Industry, Regulatory Agencies, and General Public

Activity 2.2: Develop and Implement a Plan for Improved Tracking of Potential Cruise Ship Visits and Early Communication with Cruise Line Representatives

Activity 2.3: Develop Protocols for MBNMS Communication with Cruise Line Companies, which may Include:

- Checklist of items to discuss with cruise ship companies to include anchoring guidelines, adherence to vessel traffic lanes, Sanctuary boundaries, etc.
- Contact list for cruise company representatives, and other regulatory agencies

Activity 2.4: Ensure Cruise Line Management, Ship Operators, and Crew Are Educated About the MBNMS, and Potential Impacts to Marine Resources by Cruise Ships

Activity 2.5: Provide Information on How They Can Minimize These Impacts Through Proper Stewardship And Use of "Best Management Practices" Etc.

Status: Phase 1
Potential Partners: City of Monterey, SWRCB, RWQCB, cruise ship industry

Strategy CS-3: Enforcement and Monitoring Program

Strategy Description
MBNMS staff, in collaboration with partners, will develop and implement enforcement and monitoring programs, and protocols for reporting by cruise ships.

Activity 3.1: Develop Standard Requirements and Protocols for Reporting to Include:

- Reporting in case of discharge (emergency contacts)
- Standard reporting requirements including standard documents that would be required from all cruise ships visiting MBNMS (vessel logs, printouts from holding tanks, etc.)

Activity 3.2: Develop and Implement a Monitoring Program in Collaboration with Partners

A. Investigate and evaluate potential monitoring protocols and determine feasibility
B. Identify partners and funding sources, including industry fees

Activity 3.3: Develop and Implement an Enforcement Program, in Collaboration with Partners

A. Evaluate and establish effective enforcement practices to assure compliance
B. Provide sufficient enforcement resources to investigate potential violations
C. Develop collaborative inspection programs with USCG to inspect onboard discharge records and ships systems for compliance

Status: Phase 1
Potential Partners: SWRCB, RWQCB, USCG, City of Monterey, cruise ship industry

Strategy CS-4: Cruise Ship Passenger Education Program

Strategy Description
Through partnerships with the cruise line industry and local tour operators, MBNMS staff will develop a program to educate cruise ship passengers about the MBNMS and its resources.

Activity 4.1: Investigate Partnerships with Cruise Line Industry regarding MBNMS Outreach Materials and Opportunities, including

A. Production of Customized Materials – Print and Video
B. Distribution of Education and Outreach Materials
C. Onboard Presentation or Videos about the MBNMS and its Resources

Activity 4.2: Collaborate with Sightseeing Tour Operators, to Incorporate Sanctuary Information and Messages to Shore Based Tourists

Status: Phase 1
Potential Partners: City of Monterey, cruise ship industry, tourism industry, environmental organizations

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